

Section I. (Amendment to the Claims)

1. (Currently Amended) A SCF-based removal composition consisting of at least one supercritical fluid (SCF), at least one co-solvent, and at least one reducing agent, wherein the at least one reducing agent consists of at least one of hydrogen gas, ~~formic acid~~ formaldehyde, formalin, boranes, diboranes, amine stabilized boranes, amine stabilized alanes, and tetraalkyl amines of BH_4 and AlH_4 , and wherein the at least one SCF consists of a fluid selected from the group consisting of carbon dioxide, oxygen, argon, krypton, and xenon.
2. (Cancelled)
3. (Previously Presented) The removal composition of claim 1, wherein the SCF consists of carbon dioxide.
4. (Previously Presented) The removal composition of claim 1, wherein the co-solvent consists of a species selected from the group consisting of at least one straight-chain $\text{C}_1\text{-C}_6$ alcohol, branched $\text{C}_1\text{-C}_6$ alcohol, and an amine.
5. (Previously Presented) The removal composition of claim 1, wherein the co-solvent consists of isopropanol (IPA).
6. (Cancelled) ~~The removal composition of claim 1, wherein the composition further consists of ion-implanted photoresist residue material.~~
7. (Previously Presented) The removal composition of claim 1, wherein the composition is non-fluoride containing.
8. (Previously Presented) The removal composition of claim 1, wherein the SCF-based removal composition consists of about 60.0 wt% to about 90.0 wt% SCF, about 10.0 wt% to about 30.0 wt% co-solvent, and about 0.01 wt% to about 5.0 wt% reducing agent, based on the total weight of the composition.
- 9.-11. (Cancelled)

12. (Withdrawn) A method of removing ion-implanted photoresist from a substrate having same thereon, said method comprising contacting the substrate having the ion-implanted photoresist thereon with an SCF-based composition consisting of at least one SCF, at least one co-solvent, and at least one reducing agent, for sufficient time and under sufficient contacting conditions to remove the ion-implanted photoresist from the substrate wherein that at least one reducing agent consists of at least one of hydrogen gas, formaldehyde, formalin, ~~formic acid~~, boranes, diboranes, amine stabilized boranes, amine stabilized alanes, and tetraalkyl amines of BH_4 and AlH_4 , and wherein the at least one SCF consists of a fluid selected from the group consisting of carbon dioxide, oxygen, argon, krypton, and xenon.
13. (Cancelled)
14. (Withdrawn) The method of claim 12, wherein the SCF consists of carbon dioxide.
15. (Withdrawn) The method of claim 12, wherein the contacting conditions comprise pressure in a range of from about 1500 psi to about 4500 psi.
16. (Withdrawn) The method of claim 12, wherein said contacting time is in a range of from about 1 minutes to about 20 minutes.
17. (Withdrawn) The method of claim 12, wherein the co-solvent consists of a species selected from the group consisting of at least one straight-chain $\text{C}_1\text{-C}_6$ alcohol, branched $\text{C}_1\text{-C}_6$ alcohol, and an amine.
18. (Withdrawn) The method of claim 12, wherein the co-solvent consists of isopropanol (IPA).
19. (Cancelled)
20. (Cancelled)
21. (Withdrawn) The method of claim 12, wherein the SCF-based composition consists of about 60.0 wt% to about 90.0 wt% SCF, about 10.0 wt% to about 30.0 wt% co-solvent, and about 0.01 wt% to about 5.0 wt% reducing agent, based on the total weight of the composition.

22. (Withdrawn) The method of claim 12, wherein the contacting step comprises a cycle including (i) dynamic flow contacting of the SCF-based composition with the substrate having the ion-implanted photoresist, and (ii) static soaking contacting of the SCF-based composition with the substrate having the ion-implanted photoresist thereon.
23. (Withdrawn) The method of claim 22, wherein said cycle comprises alternating and repetitively carrying out dynamic flow contacting (i) and static soaking contacting (ii) of the substrate having the ion-implanted photoresist thereon.
24. (Withdrawn) The method of claim 12, further comprising washing the substrate, at a region at which the ion implanted photoresist has been removed, with a SCF/isopropanol water wash solution in a first washing step, and with a SCF in a second washing step, to remove residual precipitated chemical additives in said first washing step, and to remove residual precipitated chemical additives in said washing step, and to remove residual precipitated chemical additives and/or residual alcohol in said second washing step.
25. (Withdrawn) The method of claim 24, wherein the SCF is SCCO_2 .
26. (Withdrawn) The method of claim 12, wherein the containing conditions comprise temperature in a range of from about 50°C to about 90°C .
27. (Withdrawn) The method of claim 12, wherein the photoresist was exposed to a high-dose ion-implantation process, wherein the high-dose ion implantation rate is greater than 1×10^{15} atoms/ cm^2 .
28. (Currently Amended) A SCF-based removal composition comprising at least one co-solvent, at least one reducing agent, and ion-implanted photoresist residue material, wherein the reducing agent comprises at least one of hydrogen gas, formaldehyde, formalin, boranes, diboranes, amine stabilized boranes, amine stabilized alanes, and tetraalkyl amines of BH_4 and AlH_4 .
29. (Cancelled)
30. (Cancelled)

31. (Withdrawn) A semiconductor device fabricated using the composition of claim 1.
32. (Withdrawn) A method of removing ion-implanted photoresist from a substrate having same thereon, said method comprising contacting the substrate having the ion-implanted photoresist thereon with the an SCF-based composition of claim 28 ~~comprising at least one SCF, at least one co-solvent, and at least one reducing agent, for sufficient time and under sufficient contacting conditions to remove the ion-implanted photoresist from the substrate.~~